

1-1-1964

Play Patterns of a Group of Nursery School Children

Diane Shrier

Follow this and additional works at: <http://elischolar.library.yale.edu/ymtdl>

 Part of the [Medicine and Health Sciences Commons](#)

Recommended Citation

Shrier, Diane, "Play Patterns of a Group of Nursery School Children" (1964). *Yale Medicine Thesis Digital Library*. 523.
<http://elischolar.library.yale.edu/ymtdl/523>

This Open Access Thesis is brought to you for free and open access by the School of Medicine at EliScholar – A Digital Platform for Scholarly Publishing at Yale. It has been accepted for inclusion in Yale Medicine Thesis Digital Library by an authorized administrator of EliScholar – A Digital Platform for Scholarly Publishing at Yale. For more information, please contact elischolar@yale.edu.

T113
+Y12
2628



PLAY PATTERNS
OF A
GROUP
OF
NURSERY SCHOOL CHILDREN

DIANE K. SHRIER

1964

MUDD
LIBRARY
Medical

YALE



MEDICAL LIBRARY

"PLAY PATTERNS
OF A
GROUP
OF
NURSERY SCHOOL CHILDREN"

by Diane K. Shrier, B.S.



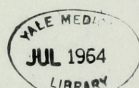
A thesis submitted in partial fulfillment
of the requirements for the Degree of
Doctor of Medicine

Yale University School of Medicine

1964

"PLAY PATTERNS
OF A
GROUP
OF
NURSERY SCHOOL CHILDREN"

by Diane K. Shrier, B.S.



7113

V12

2628

A thesis submitted in partial fulfillment
of the requirements of the Degree of
Doctor of Medicine

Yale University School of Medicine

1964

ACKNOWLEDGEMENTS

The author wishes to express her gratitude to Dr. Seymour L. Lustman for his advice and encouragement as preceptor for this project.

The author is very grateful to Miss Eveline Omwake for her suggestions and invaluable cooperation in making the facilities of the nursery school available for study.

Thanks is also due to Miss Cook and Mrs. Lee, the nursery school teachers, for their cooperation.

Dedicated to my husband, Dr. A.L. Shrier, who bore the
brunt of my trials and tribulations

TABLE OF CONTENTS

INTRODUCTION

- A. Brief History of the Child Study Movement. 1
- B. Development of Social Behavior from Birth to Five Years. 2
- C. Justification of the Present Study. 3

PURPOSE 4

SUBJECTS 5

METHOD OF OBSERVATION 6

ADDITIONAL SOURCES OF INFORMATION

- A. Teachers' Yearly Reports 11
- B. Parent Questionnaire 14
- C. Two Other Variables 17

RESULTS AND DISCUSSION 18

SUMMARY 26

APPENDIX 28

BIBLIOGRAPHY 52

APPENDIX

	Page
TABLE I Age range, Mean, and S.D. for Total Group, Boys, Girls, Group II, and Group III.	29
TABLE II Paternal Occupation, Maternal Education, Annual Family Income, and Parents' Religious Affiliations.	30
Figure 1 Diagram of Nursery School Rooms and Observer Locations.	31
Original Observation Sheet	32
Final Observation Sheet	33
Teachers' Report	34,35
Parents' Questionnaire	36,37
TABLE III Percentage of Each Child's Time Spent in Each Category of Play.	38
TABLE IV Range, Mean, and S.D. of Time Spent in Each Play Category for Total Group.	39
Figure 2 Histogram Depicting Frequency Distribution for Play Patterns.	40
Figure 3 Dot Diagram of Correlation of Alone and Peer Play.	41
Figure 4 Dot Diagram of Correlation of Alone and Adult Contact.	42
Figure 5 Dot Diagram of Correlation of Adult and Peer Play.	43
TABLE V Coefficients of Correlation and Confidence Levels for Three Categories of Play.	44
TABLE VI Means, S.D.s, Results of "F" and "t" Tests and Confidence Levels for Significant "t" tests for Each of Eight Variables.	45-49
Figure 6 Means of Play Patterns for Each of Eight Variables and Total Group.	50,51

INTRODUCTION

A. Brief History of the Child Study Movement.

Objective research at the childhood level is a relatively recent addition to the methods of study of human behavior and development. Widespread interest in child study was stimulated by Sigmund Freud's emphasis on the origin of adult neurotic symptoms in childhood experience and the formulation of his theories of personality development. Interestingly enough, Freud's theoretical conceptions of the significance of childhood were derived from work done with adult patients (10, 6, 18).

Research continued to lag behind the theory-builders through the first three decades of this century. Major strides were made in child welfare - doing things to and for the child - as opposed to study of the child. Noteworthy achievements included: the establishment of juvenile courts, Binet's psychological tests, and the mental hygiene movement of the first decade; the creation of reform schools, foster homes and special classes for the handicapped in the second decade; and the organization of child guidance clinics during the third decade (18).

With the simultaneous development of the fields of child psychiatry and child psychology in the late nineteenth-twenties, the child finally came into its own as a subject for study and analysis. The contributions of the child psychiatrists to our knowledge of the development of human behavior and personality lies outside the scope of this paper which is primarily concerned with the normal child as studied more directly under the auspices of the child psychologists.

Modern child psychology deals with the "systematic study of the child in all its life situations"(4). Its major contributions have been in the field of normal development with direct observation as an important method. Sporadic observations of individual children had been made in the latter part of the nineteenth century in the form of "baby biographies" - most notably by Preyer in the 1880's (5).

However, it was not until the nineteen-thirties that systematic observations of large numbers of children were made by Arnold Gesell at Yale and Karl Buhler and Charlotte Buhler in Vienna (11, 5, 4). Their work was followed by a proliferation of studies in various aspects of child development.

B. Development of Social Behavior from Birth to Five Years.

Most pertinent to the present paper are those studies dealing with the social development of the child, realizing that "at all stages of development, a child's social behavior is interwoven with other aspects of his development" (16). A child's social behavior tends to progress in an orderly fashion similar to, and in conjunction with, his maturation in the intellectual and motor spheres. Each age level appears to have a characteristic behavior pattern within which can be found individual variations dependent on the constitutional endowment of the particular child and the specific favorable and unfavorable experiences he encounters (15, 7).

Interpersonal relations during the first year or two of life are essentially limited to adults. This age period was most extensively studied by Karl Buhler and Charlotte Buhler (4, 5). For the first few weeks of life the child is essentially "pre-social," being unable to distinguish between human beings and other external stimuli such as loud noises and bright lights. By two to four months the child can be termed "socially responsive." Although yet unable to initiate social contact, the child will smile when confronted with a human face or at the sound of a human voice.* By five or six months the child has become "socially active" and is able to draw attention to himself by vocalization or by tactile contact.

* It is of interest that the child's first social reaction is a positive one, i.e. smiling at a human face or voice. Indeed until age five to seven months the child will smile whether the expression on the face is friendly or angry.

The child generally treats all adults with the same degree of friendliness, without discrimination, for the first six to nine months of life. By nine to twelve months, while still exhibiting no preference among those persons he knows equally well, he tends to become quite shy with strangers.* By two to four years the child is still more discriminatory in his relations with adults. His behavior is characterized by violent likes and dislikes and he becomes extremely dependent on one person, generally the adult with whom he is most familiar.

Before the age of two to three years the child's powers of communication, attention span, and inadequate social savoir-faire severely limit the duration and complexity of peer relationships. Aside from social interaction with adults, the two year old generally plays alone or at most adjacent to other children. His interest is centered around his play materials with only brief and intermittent attention paid to his companions, rarely consisting of more than one or two other children (27, 5). From three to five years peer relationships increase in frequency, duration, and complexity concomitant with increasing body agility, attention span, skill in communication, and greater awareness of the values and opinions of others (16, 34).

C. Justification of the Present Study.

"The nursery school group situation affords a more extensive opportunity to study the spontaneous social participation of children reared in families than can be found at present at any other age level" (22). Despite this fact the vast majority of childhood research has dealt with school age children and, of those studies involving the pre-school child, relatively few have been concerned with the social sphere of behavior.

* It is at this stage that negative social responses in the form of flight, attack, and so on first make their appearance.

After the age of three, with increasing importance of the peer group in a child's social life, one would anticipate a corresponding decline in solitary play and adult interaction. However, no studies could be found interrelating all three aspects of behavior, although one alone or two together have been dealt with in several papers. In regard to solitary play, a study by Green (13) comparing a group of two year olds with a group of five year olds revealed that the younger children spent 62% of their time playing alone as opposed to only 30% for the older children. A similar result was obtained by Heathers (14). Several other investigators (23, 24, 5) have commented on the increasingly negative correlation between adult and peer orientation with increasing age. Indeed, by preschool age a greater amount of time devoted to adult contact rather than to peer interaction is felt to be socially inappropriate. The hypothesis favored is that by preschool age our society tends to discourage dependence on the adult for reassurance and attention and to encourage dependence on other children for approval. Excessive dependence on adults is thought to persist either in the absence of prior satisfactory relationships with adults or when too many of the child's needs continue to be satisfied by the adult (17, 24, 23).

PURPOSE

The purpose of the present study is threefold:

1. To determine the typical pattern of spontaneous play for a group of twenty-five four year old nursery school children with regard to the relative amounts of time spent alone, with their peers, and with adults.
2. To define the existence and nature of correlations between each of the following: Alone and Peer; Peer and Adult; and Alone and Adult. One would predict, on the basis of previous studies already mentioned, a negative correlation both for Peer and Adult and for Alone and Peer. One would not anticipate a significant correlation between Alone and Adult.

Both represent rather immature types of social behavior which would be expected to diminish concurrently as development progresses.

3. To find out whether or not significant differences exist between play patterns in regard to eight variables selected from information contained in the nursery school teachers' yearly reports and in questionnaires submitted to the parents. The eight variables were:

- a. sex
- b. number of days per week attending school
- c. ordinal position
- d. sex of siblings
- e. working status of mother
- f. presence or absence of autoerotic behavior
- g. success of toilet training
- h. whether or not the child was characterized as being a worried child.

As this part of the study necessitated subdividing the twenty-five children into smaller groups for each variable (according to how they were rated for the particular variable), only very small samples - statistically speaking - could be dealt with. Although the validity of a larger study could not be claimed, it was hoped that the results obtained would be suggestive and indicate areas of interest for future research.

SUBJECTS

The subjects of this study were twenty-five children attending the nursery school of the Yale University Child Study Center. Thirteen children - six boys and seven girls - attended Tuesdays and Thursdays (Group II), while twelve children - six boys and six girls - came Mondays, Wednesdays, and Fridays. Both groups used the same rooms and equipment, were conducted by the same two teachers, and met from 8:45 A.M. to 11:30 A.M. on the days they attended.

The age range, mean, and standard deviation for the total group and for subdivisions by sex and by number of

days per week attending will be found in Table I (p. 29). Application of the "t" test (37) revealed no significant difference in age between Groups II and III or between boys and girls.

A number of facts about the families and backgrounds of the children was obtained from questionnaires sent to the parents and from the teachers' yearly reports. Data on paternal occupation, maternal education, annual family income, and father's and mother's religious affiliations is summarized in Table II (p.30).

At the time of this study the nursery school - a part of Yale University - did not attract a representative sample of the general population of New Haven. The children came, almost exclusively, from the professional and business-managerial classes, with a family income well above the national average.

Several children in each of Groups II and III manifested environmental or constitutional characteristics which superficially made them different from the rest of the group. These traits are commented upon to later note whether or not these children exhibit play patterns dissimilar to the rest of the group, although the small size of the sample precludes quantitative evaluation. In Group II two of the children were foreign born, although for only one was English not the mother tongue; two of the children were siblings; one child was adopted; one child was Negro; and one child was retarded by at least one year according to developmental evaluations. In Group III one child was an only child; one child's father was deceased; one child's parents were separated; and one child had bilateral congenital deformities of the fingers.

METHOD OF OBSERVATION

The time sampling technique was selected as the most satisfactory method of determining the spontaneous play patterns of a group of nursery age children. The method

consists of a series of timed observations of a child, group, or activity with no prior arrangement between observer and observed. The assets and liabilities of this technique have been discussed in detail by Mussen (28). In brief, the advantages are that the method is simple, not very time consuming, objective, lends itself to quantitative analysis and provides a good representative measure by diminishing day to day variability through a number of observations. The disadvantages of this method are that it can be affected by the observer's bias and, as quick judgment is required, it is unreliable if the subject is too complex or if too many categories are included.

During the year prior to the actual observation period the author spent a number of mornings at the nursery school observing various children at random for several minutes apiece. As much as possible about each child's activities, companions, conversation, and the author's subjective impressions was recorded in an endeavor to determine what data one could record accurately and what time period would be long enough for reliable recording yet short enough to permit a significant number of observations per child to be made.

A six week period of observation from January 25th through February 27th, 1963 was selected. It was felt that a midyear sample would eliminate the effect of strange surroundings on the children's play: the children would be familiar with each other, their teachers, and the activities and equipment of the nursery school. Observations were made from 9:30 to 10:30 A.M. This hour was chosen for three reasons: by 9:30 all the children who were planning to come that particular day had arrived; until 10:30 the children generally played in an undirected spontaneous fashion; snack was served at roughly 10:30 and was followed by organized activities such as story telling and listening to music which were not suited to the purpose of the present study.

One minute observations, using a stop-watch, were made of each child once or twice daily on the days his group attended. The hour was divided into fifteen minute intervals and the recording sheets so arranged that each child would be observed as frequently as any other child during each fifteen minute interval. Also each child was observed as many times during one fifteen minute period as during any other fifteen minute period. Individual recording sheets were kept for each child with four separate observations per sheet. If, during an observation, a child's play was interrupted by an early snack time or by an adult's inviting him to participate in other studies that were being conducted concurrently, that particular observation sample was discarded. However, if the child under observation was approached by an adult because of rambunctious behavior or because he needed assistance or comfort, this observation was included whether the contact was adult- or child-initiated.

A diagram depicting the location from which observations were made will be found on page 31. Children in all three rooms could be clearly seen, although not always heard, from this position. If closer observation of some situations was desired either of the two secondary positions indicated on the diagram could be taken.

To check the reliability of my observations, it would have been desirable to have a second observer present but this did not prove to be possible. However, other studies using the time sample technique and two or more observers have found correlations between observers of more than 0.90 (12, 24).

Both the original and the final forms of the observation sheet will be found in the Appendix (pp.32 and 33). The original data sheet was replaced after several trial observations revealed that too many categories had been

included to permit reliable recording. The group number and the fifteen minute time interval were penciled in in the space above NAME. A description of the various categories observed follows:

NAME, DATE, and TIME are self-explanatory.

ACT. refers to the activity in which the child was engaged, described in one or two words, e.g. "painting."

OTHR. called for the names of the children or adults with whom the child had contact during the observation interval.

The above headings were for purposes of identification only whereas those that follow were the ones used in quantitating the play patterns of the children. The number of seconds the child was engaged in each category of play was recorded in the blank next to that category. Descriptions of the various categories are modified from a study by Parten (29).

ALONE is a general heading indicating any part of the observation interval during which the child had no contact with others. ALONE is divided into three types of behavior:

U- Unoccupied. The child was considered to be unoccupied when he was not actively playing but rather glancing around the room at whatever happened to be of momentary interest, playing with his own body, or just wandering about the room.

O- Onlooker. The child was so rated when he spent his time watching the play of a particular child or group of children without being actively engaged himself. The child must be located near enough to those he is observing to be able to see and hear everything that takes place.

S- Solitary. The child was engaging in solitary play when he was playing independently with toys that were different than those used by children withingspeak-ing distance. He seemed to indicate no interest in, or need, the presence of others.

PEER is a general heading under which is included any portion of the observation time during which the child had contact with other children. Two subheadings are included under this category:

P- Parallel. Parallel play was said to occur when the child was playing beside, but not with, another child or group of children, using toys similar or identical to those used by the other children. No attempt was made to influence the way in which the other children used the toys or to prevent others from leaving or joining the group. Parallel play is very similar to, and indeed frequently occurs conjointly with, Piaget's collective monologue. In the collective monologue the presence of another person serves as a stimulus to conversation without information actually being exchanged - "the child talks only about himself, regardless of his hearers' point of view, and very often without making sure whether he is being attended to or understood" (31).

A- Associative. The child was considered to be engaged in associative play when he was involved with other children in a similar or identical activity. Borrowing and loaning of material might occur with mild attempts to limit the group to particular children. The child's primary interest appeared to reside in his associates rather than in the play material (the reverse of parallel play). However, this type of play is still relatively simple in that the activity is not organized around a specific goal nor is there a subdivision of roles.

In the final form of the observation sheet a third subheading is listed under PEER, that is C or Cooperative play. Cooperative play is a more complex form of play revolving about an organized activity, such as the dramatization of adult life or the playing of formal games, in which one or two children direct the others, with subdivision of roles, and a strong sense of belonging to the group. This type of play was eliminated before the final analysis of data as it became clear that the children under observation very rarely exhibited social behavior more complex than Associative play and even on these occasions the play was somewhere in between Associative and Cooperative play in sophistication. In the final data analysis Associative play was considered as the most complex form of play displayed.

ADULT. Under this heading was included that part of the observation interval during which the child was playing beside (similar to parallel play), conversing with, or actively engaged in an activity with an adult.

ADDITIONAL SOURCES OF INFORMATION

The teachers' yearly reports and questionnaires sent to the parents provided background information on the subjects of this study as well as the eight variables used in the third part of the investigation (see page 5).

A. Teachers' Yearly Reports

A nine page report was filled out by the nursery school teachers for each child at the completion of the school year. The report consisted of six sections requesting the teachers' impressions of various aspects of each child's behavior, personality, and family. Section I provided background information on the family and also discussed the family's relationship with the child and with the school. Section II contained a descriptive paragraph of the child and discussions on how he reacted to adults at school and how he typically began the school day.

Section III dealt with the fears and problems of the child and the type and amount of teacher guidance required over the year. Section IV discussed the level of ego function the child had achieved in terms of intellectual abilities, awareness of his environment, and adaptive and motor behavior. Section V described the child's play interests and his characteristic manner of using specific play equipment. Section VI stated whether or not the teachers and the parents were satisfied with the progress the child had made over the year.

Much consideration was given as to how to best make use of the wealth of complex and subtle data available on each child. The information, for the most part, was subjective and descriptive in nature, making quantification of the teachers' responses difficult. However, nine items in the report did lend themselves to being reliably rated in a yes or no (or don't know) fashion. The results of the initial survey revealed that for all but three of the nine items less than five children received an answer different from that of the remainder of the group. It was adjudged that less than five would not be statistically significant and hence only three of the items were retained for use in determining whether there was any difference in the play patterns between those children receiving a "yes" and those receiving a "no" (or don't know) answer. The three questions were:

1. Did the child seem to the teachers to be a worried child?

It was hypothesized that a worried child had probably not had entirely satisfactory relationships with adults and might be anticipated to have some difficulty establishing peer relations. The play pattern of the "worried" child might reveal relatively high adult and solitary play and relatively low peer contact.

2. Were any lapses in toilet training noted in school or reported to have occurred at home?*

Two possibilities suggest themselves. Either those children who did have lapses were under more tension than the average child or one might expect a child of four to forget to go to the bathroom when engrossed in play or in moments of excitement. In the first instance it might be expected that a tense child would exhibit a play pattern relatively low in peer contact, as arrival at the stage of peer socialization presupposes satisfactory passage through prior stages of development. In the second instance no significant differences in play patterns would be anticipated.

3. Was the child observed to exhibit autoerotic behavior in school?

Autoerotic behavior was considered to include any of the following: thumbsucking, nailbiting, finger chewing, mouthing or licking objects, eating food to excess, eating inedibles, water drinking to excess, tongue sucking, drooling, masturbation (manual or postural), rocking, withdrawal behavior.

Again, autoerotic behavior might signify increased tension or, in moderation, might be normal. In the first case, relatively low peer contact and in the second case no differences in play patterns would be anticipated. If sufficient numbers of children had been available it would have been of additional interest to subdivide the group according to whether the children exhibited autoerotic behavior frequently, infrequently, or not at all.

* Among those children who were rated as having lapses in toilet training was included a child with a problem in stool retention.

A copy of Section I and Section III of the teachers' report is included in the Appendix (pp 34,35). The informational data in Section I was used in this study as were items 3,5, and 6 in Section III.

B. Parent Questionnaire

A questionnaire is not the ideal way of gathering information about the developmental history and the home environment of children. A more reliable approach consists of a series of interviews with both parents and visits to the home by trained observers. However, limitations of time and experience eliminated the latter possibility for this study. The major errors inherent in the questionnaire approach have been discussed by Wenar, Bell, Mussen, and Schaefer (36, 2, 28, 32) and included faulty comprehension of the question, a tendency to respond in what was perceived as being the socially acceptable fashion, and erring on the side of precocity in answering questions dealing with a child's developmental history. The major assets were speed and objectivity.

An attempt was made to avoid some of the pitfalls of the questionnaire by selecting questions which were not ambiguous and were so phrased as not to indicate the socially acceptable response. Particularly fruitful sources suggesting suitable questions were Sears (33), Gesell (11), and Becker (1).

The father as an important, and frequently neglected, source of data was stressed by Davidson et al (9) and Peterson et al (30). In my cover letter I emphasized the desirability of both parents answering the questionnaire. Ideally, separate questionnaires should have been sent to each parent and the questions answered without consultation between parents. However, as it was not practicable to control the conditions under which the questionnaires were answered and as, in most families, collaboration was felt to be inevitable, one questionnaire was sent to each set of parents. The parents were encouraged to signify disagreement of answers by marking an "F" for the father's reply and an "M" for the mother's response, whereas an "X" would signify that the answer was the same for both parents.

The questionnaire was concerned with five main areas of the child's life outside of school, in addition to an introductory data collecting section. The preliminary data requested were the age, sex, occupation, and religious and educational backgrounds of the various members of the child's family and also the financial and marital status of the parents. Questions one through six were concerned with playmate availability and preference outside of school. Questions seven through eleven dealt with the approximate age at which various developmental landmarks were reached. Questions twelve through twenty-three involved attitudes and practices of child rearing. Questions twenty-four through twenty-six concerned the social habits of the parents and questions twenty-seven through twenty-nine dealt with the amount of time the child had been separated from one or both parents. A space for comments was left at the end of the questionnaire.

Twenty-four of the twenty-five questionnaires sent out were returned. Eighteen sets of parents, five mothers, and one father responded, but three of the eighteen couples neglected to answer one or more questions. After consideration of comments expressed by several parents and reevaluation of the questionnaire in light of the answers received, it became clear that in an attempt to phrase the questions so as to make the socially acceptable response less obvious an error had occurred in the direction of ambiguity. Indeed for several questions a number of parents had marked three or more answers per question. If a larger population of parents had been available it would have been desirable to have submitted the original questionnaire to a portion of the population, revise the questionnaire on the basis of the results obtained, and then resubmitted the questionnaire to the remainder of the population. In the present study it was felt that twenty-five was too small a sample to permit sending out a preliminary questionnaire nor could reliable results be anticipated by sending a very similar but clarified questionnaire to the same group of parents.

The information gained from the questionnaires was used in the present study in two ways: to describe the family backgrounds of the children who were observed in the study (see pages 6 and 30) and to provide three of the variables for use in determining whether differences in play patterns existed among those children who were rated differently for each variable. A copy of those parts of the questionnaire used in this study (underlined) are included in the Appendix (pp36 and 37).

The three variables selected were:

1. The ordinal position of the child

The group was divided into oldest children, youngest children, and middle children - the single only child was omitted. Unfortunately the size of the sample precluded further subdividing the children by sex, which Koch (19, 20) demonstrated to have significant effects on ordinal position. Also of interest would have been the effects of age difference between siblings.

One might predict, on the basis of Koch's work (20) that the oldest child would reveal a relatively high amount of adult contact. Lasko (21) found that parental behavior towards the first child tends to be more restrictive and coercive than towards later children. As there seems to be a relationship between restrictive home discipline and a passive, relatively unpopular child (28, 26) one might also anticipate the oldest child to have relatively less peer interaction than later children.

2. Sex of siblings

The group was divided into those children having siblings of the same sex, those with siblings of the opposite sex, and those with siblings of both sexes - with omission of the only child. Again,

it was not deemed feasible to further divide the group according to whether one was dealing with boys or girls, or by age difference between siblings.

One might anticipate more rivalry for parental affection for those children with siblings of the opposite sex only, dependent on the preference exhibited by the parents for one sex or the other. As a "warm and satisfactorily dependent relationship with adults must exist before a child can be secure enough to gain emotional satisfaction from social competence with and acceptance by peers," (23) one might predict relatively low peer contact by children with opposite sex siblings.

3. Working status of mother.

The children were divided into those whose mothers had worked either full or part time prior to the child's entry into nursery school and those whose mothers had not worked (or unknown).*

It was postulated that those children whose mothers had worked might not have experienced as satisfactory a dependent relationship with adults and hence might be predicted to exhibit relatively less peer contact and more adult contact than the others.

C. Two Other Variables.

The last two variables for which differences in play patterns were evaluated were obtained from data available in both the teachers' reports and the parents' questionnaires.

1. Sex

The play patterns of the boys and the

* The working history of one mother was not known.

girls were compared.

Other studies (3, 12, 25) had found that girls tend to be more advanced than boys in social development, even at the preschool level and engaged in more peer play than did the boys. However, a French study of 888 preschool children (8) found the opposite result, with more boys than girls in the three to five age range participating in groups.

It might also be predicted that the girls would exhibit a greater amount of adult contact than the boys as was found in previous studies (24, 27) on the basis of the hypothesis that, in our society, dependent behavior is more acceptable for girls than boys.

2. Number of days per week

Group II and Group III were compared.

It was anticipated that Group III, by virtue of its attending school one day a week more than Group II, would feel more at ease in the nursery school situation and hence less inhibited in their play. It was predicted that Group III would exhibit relatively more peer play than Group II.

RESULTS AND DISCUSSION

A. Observations

The number of observations made on each child in Group II ranged from nineteen to twenty-three with a mean of twenty-two and a mode of twenty-two. In Group III the number of observations ranged from twenty-four to thirty-one with a mean of twenty-eight and a mode of twenty-nine observations. Only two children in Group II were observed for fewer than twenty-two observations; five children in Group III were observed less than twenty-nine times - in all instances because of absences from school.

The play patterns for each child were determined in the

following manner. The number of seconds spent in each of eight categories of play over the six week observation interval was calculated for each child. The eight categories were: Unoccupied, Onlooker, Solitary, and total time spent Alone; Parallel play, Associative play, and total time spent with Peers; Adult contact. To provide comparability of data between children despite small variations in the total number of observations per child, the percentage of time spent in each of the eight play categories was then computed. The formula used was:

$$\begin{array}{lcl} \text{Percentage of time} & - & \text{Number of seconds in category} \times 100 \\ \text{in play category} & - & \text{Total observation time in seconds} \end{array}$$

The percentages for each play category for each child will be found in Table III (p. 38): the range, mean, and standard deviation for each category is presented in Table IV (p.39). It will be noted that the children, as a group, spent the largest amount of time in peer-oriented activities. Indeed, according to the means, the average child spent nearly half his time in peer play with the remainder of the time being nearly equally divided between playing alone and adult contacts. From the previous discussion of the development of social behavior in the child (p.3), it can be seen that by three to five years of age the peer group has come to play an increasingly important role.

It is of interest that those children who were noted to exhibit certain characteristics distinguishing them from the rest of the group (p.6) were not the same children who were found to spend a percentage of their time greater or less than one standard deviation from the mean for each of the various categories. The single exception to this statement was the retarded child who was found to deviate from the mean by at least one standard deviation, sometimes two, for all eight categories of play (see Table III, Code #II⁴VH).

Histograms were drawn for each category (p.40). Unoccupied, Onlooker, and Associative play were noted to be skewed to the left indicating that the majority of the children spent only a relatively small percentage of time in these three activities. Parten (29) noted a similar result for the first two categories in her study of a group of nursery school children. The relatively low amount of Associative

play would be anticipated from the stage of social development attained by the age group under consideration. By nursery school age parallel play is the major form of peer interaction with relatively few children possessing the skills need for more complex play. Piaget noted a similar fact in his study of the language of the child wherein he noted that the collective monologue - which is analogous to parallel play - was the most used form of language prior to the age of seven (31).

B. Correlations.

Dot diagrams were drawn to graphically demonstrate the presence or absence of correlation between each of the three major play categories: Alone and Peer; Peer and Adult; Alone and Adult (see pp 41, 42, 43). The coefficient of correlation was then calculated in each instance and the level of significance determined as described by Wert (37). The information is presented in Table V (p. 44).

Negative correlation coefficients were obtained for Alone and Peer, Peer and Adult, and Alone and Adult. The correlation for Alone and Adult was not significant. This result could be anticipated from a study of the development of social behavior in the child in which solitary play and adult dependency diminish simultaneously. The correlation between Peer and Adult was significant at the 90% confidence level. This was a lower order of confidence than was obtained by Marshall (23) whose correlation was at the 95% level of confidence. The difference in degree of significance might be attributable to the smaller number of subjects and fewer observations in the present study as Marshall had thirty-six subjects with an average of one hundred observations per child. The correlation between Alone and Peer was significant at the 99.9% level of confidence. No study confirming this result could be found although Green (13) did comment on the decrease in solitary play and increase in peer relationships with increasing age.

C. Differences in Play Patterns for Eight Variables

The children were classified for each of the eight variables as has already been discussed. The mean and

standard deviation for each play category were determined for the children in the various subdivisions of each variable. The "F" test (test of variance) was then applied to determine if a significant difference existed between the standard deviations of the subdivisions of each variable. If the results of the "F" test showed that the differences in standard deviations were not significant the "t" test could then be applied to determine if a significant difference existed between the means of the subdivisions for each variable; the level of confidence for a significant "t" test was recorded. If the "F" test indicated that the differences in standard deviations were significant further calculations were not felt to be justified in view of the small number of subjects per subdivision. Any difference between the means was considered to be on the basis of the variance (standard deviations). The "F" and "t" tests are discussed in detail by Wert et al (37). The means, standard deviations, results of the "F" and "t" tests, and the level of confidence of significant "t" tests will be found for each of the eight variables in Table VI (pp. 45-49). The means for the play categories of the subdivisions of each variable are graphically demonstrated on pages 50 and 51 - the means for the total group are included for purposes of comparison.

The results obtained for each variable are discussed below.

1. Sex

The girls in this study were found to exhibit significantly less peer interaction and significantly more play alone than the boys. This result was contrary to that obtained in most other studies (3, 12, 25). However, it should be noted that these studies all dealt with small numbers of children. A very large study of nearly 900 children (8) did confirm the finding that boys engaged in group play more than did girls. The disagreement between results among the

several studies cited points up the crucial importance sampling plays in a study. Indeed, in the present study, the results were undoubtedly strongly influenced by the fact that in both Groups II and III there were several boys who engaged in a great deal of peer socializing whereas no such relationships were established among the girls.

The contradictory results of the various studies indicates need for further research to confirm or disprove certain generalizations made about boys and girls. Those studies which found more girls engaged in peer socializing postulated that girls mature faster than boys in the social sphere. However, other studies (27) have commented that boys are freer to exhibit aggressive behavior and less likely to exhibit dependent behavior than girls, with the implication that our society tends to encourage boys not to seek adult (especially female teachers) companionship or to engage in quiet solitary play, but rather to engage in active peer contacts. Of interest is that in the present study the boys were noted to engage in peer socializing of predominantly a boisterous type - with much shouting and running about.

2. Number of days per week attending

Those attending three days a week (Group III) exhibited significantly more parallel play and more adult contact than those attending twice a week (Group II).

More peer play (of which parallel play constitutes the major part) was predicted for Group III on the basis that children who see each other more frequently play together more readily. This result further indicates that age is not the only factor of importance in social development (no significant age difference was found between Groups II and III) but that social ability can be stimulated by pro-

viding opportunities for the child to engage in peer contacts.

The increase in adult contact for Group III was not anticipated on the supposition that increased familiarity with the nursery school situation would result in decreased dependency on adults. However, the result obtained could be explained by considering one of the major developmental tasks accomplished by the child attending nursery school - separation from the mother. One could reason that the child attending three days a week might more easily transfer his dependence on the mother to the teachers, whereas the child attending twice a week might still be splitting his dependency between mother and teacher.

3. Ordinal position

No significant difference was found in the play patterns between oldest and youngest children or between oldest and middle children. Youngest children were found to exhibit significantly less solitary play, less total time Alone, and more parallel play than middle children. However, the significance of these results was obscured by the fact that four of the five middle children were girls. It has already been noted that girls were observed to play alone more and to engage in less peer interaction than boys.

The lack of significance found between the various subdivisions of this variable could be explained by the strong influence the sex of the child and age difference between siblings has on ordinal position as has been discussed by Koch (20). The small size of the sample precluded investigating the effects of these two factors, but this would be an interesting area for future research.

4. Sex of siblings

No significant difference in play patterns was found between children with siblings of the opposite sex only and those with siblings of both sexes or between children with siblings of the same sex only and those with siblings of the opposite sex only. Children with siblings of the same sex had significantly less unoccupied play than children with siblings of both sexes. Considering the very small amount of total time devoted to unoccupied behavior it is rather difficult to explain the etiology of the significant difference obtained.

The general lack of significance was not unexpected as the sex of the child under consideration, ordinal position, and age differences between siblings were again not considered.

5. Working status of mother

Children whose mothers had worked were found to have significantly less adult contact than those whose mothers had not worked. The reverse result had been postulated, assuming that children of working mothers would have had insufficient satisfaction of their dependency needs. However, the result obtained could be explained on the basis of one of several hypotheses. The children of working mothers might already have resolved the developmental task of separation from the mother (usually first faced with entry into school). Indeed, considering the educational level of the mothers of this particular group (p. 30, Table II) they might have been aware of the possible effects their working could have on their offspring and gone out of their way to help them to resolve their separation problems. Another possibility is that the children of working mothers found it easier to displace their

dependency needs onto their peers. However, the present study did not indicate a significantly greater amount of peer play by the children of working mothers. A third hypothesis would be that the children of the working mothers had been forced through a premature separation and were hesitant about making another investment in an adult. Further investigation in this area would be of interest.

6. Autoerotic behavior.

No significant difference in play patterns was noted between those children who were observed to exhibit autoerotic behavior at school and those who were not. It could be postulated that the presence or absence of autoerotic behavior was not associated with differences between children which would manifest themselves in their play behavior. Another possibility is that nursery age children occasionally exhibit autoerotic behavior and that it is only when those children who engage in autoerotic behavior to excess are distinguished that significant differences are found.

7. Toilet training.

Children who were not noted to have any lapses in toilet training were found to engage in significantly more parallel play than those for whom lapses were reported.

This result was anticipated on the basis of children with difficulties around toilet training tending to also have difficulties in the area of social development. The child with lapses in toilet training might be anticipated to be an anxious child who would hence have some difficulty in establishing satisfactory peer relationships.

8. Worried child

No significant differences in play patterns

were found between those children whom the teachers rated as being worried and those who were not so rated.

Two possible explanations can be suggested. Either the differences between the worried children and those not considered to be worried did not manifest themselves as differences in play behavior or, more likely, the criteria used in determining what constitutes a worried child were not explicitly stated in the teachers' reports. Future investigation in this area would require more stringent definition of what indicates a worried child.

SUMMARY

The play patterns of twenty-five nursery school children with an average age of four years were determined by a series of one minute observations made over a six week period of time. The children were found to spend nearly half their time in peer interaction with the rest of their time nearly equally divided between playing alone and adult contacts.

Correlations between the three major categories of play were investigated. No significant correlation was found for Adult and Alone. A negative correlation of a low confidence level was found for Peer and Adult; a negative correlation of a highly significant level was found for Alone and Peer. The findings of other studies were discussed.

Differences between play patterns were studied for each of eight variables:

1. Girls were found to engage in less peer interaction and more solitary play than boys.
2. Those children attending three days a week exhibited more parallel play and more adult contact than those attending twice a week.
3. No significant difference was found in the play patterns of oldest versus youngest or of oldest versus middle children. Youngest children were found to engage in more parallel play and less solitary play than middle children; however, four of the five middle children were girls.
4. No significant difference was found between those

children with siblings of the opposite sex only and those with siblings of both sexes or between children with siblings of the same sex and those with siblings of the opposite sex only. Children with siblings of the same sex were found to engage in less unoccupied play than children with siblings of both sexes.

5. Children of mothers who had worked were found to have less adult contact than those whose mothers had not worked.

6. No significant difference was found between children exhibiting autoerotic behavior and those who did not.

7. Children with lapses in toilet training were found to engage in less parallel play.

8. No significant difference was found between children rated as worried and those who were not so rated.

Areas for future research in the effects of various factors on the play behavior of children are indicated.

APPENDIX

TABLE I

AGE RANGE, MEAN, AND STANDARD DEVIATION FOR TOTAL GROUP, BOYS
GIRLS, GROUP II, AND GROUP III

	Age range	Mean age	S.D.
Total Group	3'5"-4'8"	4'	$\pm 6.9"$
Boys	3'8"-4'8"	4'2"	$\pm 4.1"$
Girls	3'5"-4'6"	3'11"	$\pm 3.9"$
Group II	3'8"-4'8"	4'2"	$\pm 4.3"$
Group III	3'5"-4'3"	3'11"	$\pm 3.5"$

TABLE II

PATERNAL OCCUPATION, MATERNAL EDUCATION, ANNUAL FAMILY INCOME,
AND PARENTS' RELIGIOUS AFFILIATIONS

Paternal Occupation*	Class I	Class II-III	Class IV-V	
	19	6	0	
Maternal Education**	High School	College (2-4 years)	Grad. Sch.	Doctorate
	1	13	7	2
Family Income***	Below \$5000	\$5-15,000	Above \$15,000	
	5	14	4	
Father's Religion	Jewish	Protestant	Catholic	Unknown
	7	6	7	4
Mother's Religion				
	5	9	6	4

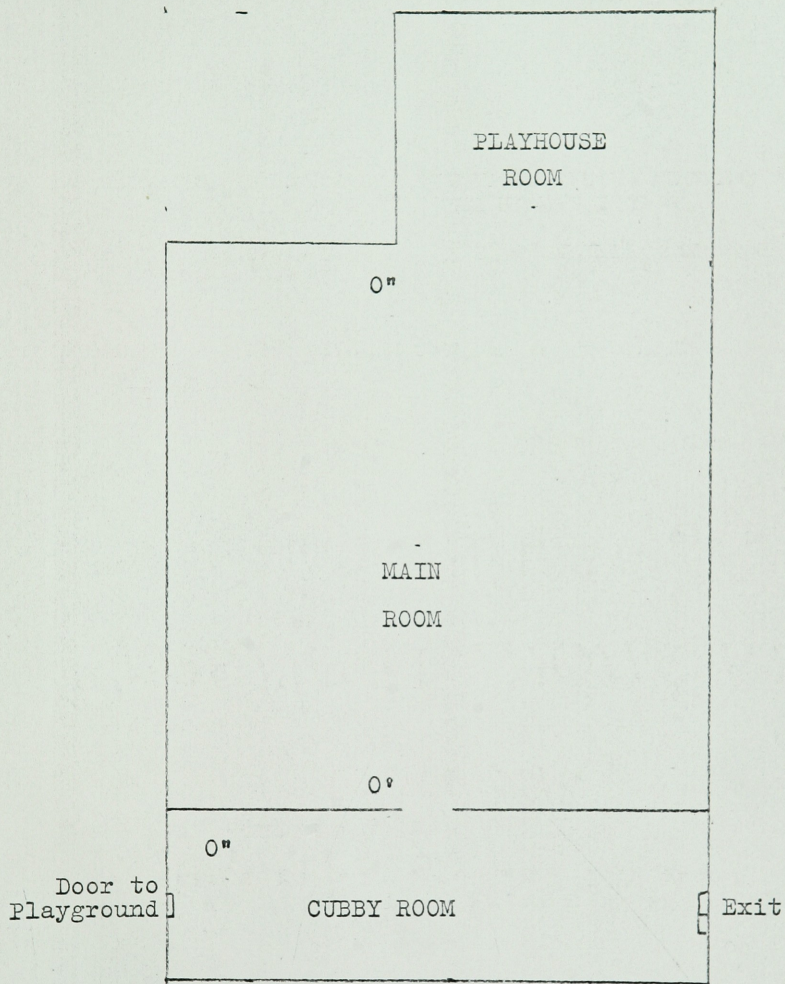
* Warner classification (35).

** No information on one mother.

*** Of the five families with incomes below \$5000, in four the fathers were physicians in hospital training and the fifth father was a PhD candidate.

Figure 1

DIAGRAM OF NURSERY SCHOOL ROOMS AND OBSERVER
LOCATIONS



O' indicates position from which majority
of observations were made.

O'' are secondary locations occasionally
needed to obtain a better view of
particular children.

ORIGINAL OBSERVATION SHEET

NAME:

DATE:

TIME:

ACT.:

OTHR:

ALONE

U :

O :

S :

PEER

P :

A :

C :

ADULT

:

IND.:

DIR.:

FOL.:

INTERACTION

(H) OR (F)

(OF) OR (TO)

VER.:

PHY.:

SPA.:

ATT.:

N.R.:

FINAL OBSERVATION SHEET

NAME:

DATE:

TIME:

ACT.:

OTHR:

ALONE

U :

O :

S :

PEER

P :

A :

C :

ADULT

:

YALE UNIVERSITY
CHILD STUDY CENTER
NURSERY SCHOOL

Report to be prepared by teachers for child's permanent file.

SECTION I Informational Data

Name of child

Name of Parents

Birthdate

Home Address

Ages of siblings

Father's Occupation

Year in OSCNS (1st, 2nd)

Mother's Occupation

Enrolled for _____ days per week

Name of Pediatrician

If many absences during year give reasons

1. Relationship between parents and school. (frequency of contacts; critical areas)
2. Nature of child's relationship with family members as reported and observed
 - 1) mother
 - 2) father
 - 3) siblings and others

SECTION III Behavior and Guidance

1. Amount and nature of teacher guidance required by this child:
2. What are your clues for knowing when he needs help? How does he make you aware of his needs? (for support, protection, etc.) At what point do you step in? Has there been progress in this type of independence?
3. Does he seem to you to be a worried child? In what way? and what do you consider to be the contributing factors. Is the degree and quality of his emotional expression (crying, tantrums, etc.) appropriate - all factors considered (age, personality, circumstances, etc.)? Is it changing?
4. Is he a fearful child? How does he show this? Does he have specific fears? (dogs, animals, noises, aggression, elevators, etc.) What happens? What helps him regain composure?
5. Is toilet training established? Lapses? When? Anything significant in history of training?
6. Have you observed any of the following forms of auto erotic behavior?
Single check for infrequent; double check for frequent.
 - Thumbsucking
 - Nailbiting
 - Finger chewing
 - Mouthing or licking objects
 - Eating food (to excess)
 - Eating inedibles (dirt, clay, dough, etc.)
 - Water drinking (to excess)
 - Tongue sucking
 - Drooling
 - Masturbation
 - Manual
 - Postural
 - Rocking
 - Withdrawal behavior

What is his characteristic body position when sitting at snack table or story, music times - Relaxed? Tense? Jittery, etc.?

First Name of Nursery Child: _____

FAMILY

	FATHER	MOTHER	OTHER CHILDREN	OTHERS IN HOUSEHOLD
Birthplace	_____	_____	_____	_____
Birthdate	_____	_____	_____	_____
Last Year of School Completed	_____	_____	_____	_____
Occupation and Present Employment	_____	_____	XXXXXXXXXXXXXXXXXXXX	_____
Race	_____	_____	XXXXXXXXXXXXXXXXXXXX	_____
Religion	_____	_____	XXXXXXXXXXXXXXXXXXXX	_____
Relation to Nursery Child	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX	_____	_____
Sex	XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX	_____	_____

Average Yearly Family Income (Check One).

a) Less than \$5000 ____ b) \$5000 - \$10000 ____ c) \$10001 - \$15000 ____ d) More than \$15000 ____

Family Status (Check One)

a) Married ____ b) Separated ____ c) Widowed ____ d) Divorced ____

Year Married _____

Please mark an "M" next to mother's preferred answer, an "F" next to father's preferred answer, or an "X" next to the answer you and your spouse have both agreed upon.

1. How many children of your child's age (within a year) live within a two block radius of your home?

a) None ____ b) One or two ____ c) three to five ____ d) More than five children ____

2. Does your child, outside of nursery school, play mostly with:

a) boys ____ b) girls ____ c) both ____ d) alone or with adults ____

3. Does your child, outside of nursery school, prefer to play with:

a) children more than a year older ____ b) children more than a year younger ____
c) children of the same age ____ d) children of a variety of ages ____ e) alone or with adults ____

23. If you saw your child quarreling or fighting with another child his age what would you most likely do?
 a) Encourage child to defend himself ___ b) Ignore the situation ___ c) Suggest a compromise ___ d) Suggest withdrawal from the conflict because it is "not nice to fight" ___ e) Encourage child to come to you ___
24. About how many times within the past year have you attended meetings or affairs of any local organizations, societies or clubs?
 a) More than 12 times ___ b) 7 - 12 times ___ c) 4 - 6 times ___ d) 1 - 3 times ___ e) None ___
25. About how many times have you attended a church or synagogue in the past year?
 a) Once a week or more ___ b) 1 - 2 times a month ___ c) 5 - 10 times in past year ___ d) 1 - 4 times in past year ___ e) Not at all ___
26. About how many times in the past year did you have friends or relatives at your house for an evening?
 a) More than twice a month ___ b) Once a month ___ c) Every other month ___ d) One to five times in past year ___ e) Not at all ___
27. Did mother work before child entered nursery school?
 a) Not at all ___ b) Occasional job, less than three months all together (exclude work done in the home) ___ c) 8 - 10 hours a week for less than one year total or 5 - 6 hours a day for less than six months total ___ d) 5 - 6 hours a day for less than two years or 35 - 40 hours a week for less than six months ___ e) 35 - 40 hours a week for more than six months or more than twenty hours a week for more than one year ___
28. Did your child ever stay with anyone (include grandparents) without his parents in the year prior to entering nursery school?
 a) Never ___ b) One or two evenings in past year ___ c) 3 - 10 evenings ___ d) 1 - 2 evenings a month ___ e) 1 - 2 evenings a week or more ___
29. Has child ever been separated from either mother or father before entering nursery school (include hospitalization, armed forces, etc.). Answer M or F.
 a) Never ___ b) 1 - 2 days at one time ___ c) 3 - 7 days at one time ___ d) 1 - 2 weeks at one time ___ e) 4 - 6 weeks or more at one time ___

COMMENTS:

TABLE III

THE PERCENTAGE OF EACH CHILD'S TIME SPENT IN EACH CATEGORY OF PLAY

Code #	U	O	S	Alone	P	A	Peer	Adult
II1BC	5.9	2.3	35.3	43.5	24.8	0.7	25.5	31.0
II2EG	14.5	6.9	19.6	41.0	29.6	7.9	37.5	21.5
II3LG	3.3	1.3	20.9	25.5	38.0	12.0	50.0	24.5
II4VH	14.2	30.4	29.4	74.0	14.5	-	14.5	11.5
II5MH	2.1	6.3	10.1	18.7	29.8	35.0	64.8	16.5
II6PK	3.7	2.9	16.1	22.7	20.0	40.0	60.5	16.8
II7VK	5.2	3.2	25.6	33.8	27.3	4.7	32.1	34.1
II8JO	-	-	2.0	2.0	44.5	36.0	80.5	17.5
II9AR	11.1	12.6	19.8	43.6	24.0	12.5	36.4	20.0
III1RT	2.6	1.8	25.6	30.0	34.0	5.0	39.0	31.0
III2MV	2.0	7.2	37.8	47.0	26.2	12.3	28.5	14.5
III3FW	6.1	8.1	9.1	23.3	26.6	30.7	57.3	19.4
III1KA	4.4	3.3	22.3	30.0	39.5	15.5	55.5	14.5
III2JB	3.7	8.5	7.3	19.5	46.4	8.6	55.0	25.5
III3LF	6.1	8.3	9.6	24.0	39.2	8.8	48.0	28.0
III4JG	6.0	9.5	20.5	37.0	26.0	16.0	42.0	21.0
III5DG	7.7	5.3	13.0	26.0	32.8	2.2	35.0	39.0
III6CL	0.5	0.9	4.1	5.5	37.5	34.5	72.0	22.5
III7ML	-	1.3	10.7	12.0	46.4	6.1	52.5	35.5
III8DS	8.3	7.5	14.7	30.5	21.8	7.7	29.5	40.0
III9BT	3.5	9.7	16.5	29.7	30.0	7.5	37.5	32.8
III10ET	7.2	1.1	19.2	27.5	43.0	4.7	47.7	24.8
III11JV	1.9	6.5	18.8	27.2	28.5	27.7	56.2	16.6
III12DW	5.5	7.6	14.4	27.5	38.6	10.9	49.5	23.0
III1XPR	11.2	4.6	19.7	35.5	32.0	3.5	35.5	29.0

* U - Unoccupied

O - Onlooker

S - Solitary play

P - Parallel play

A - Associative play

TABLE IV

RANGE, MEAN, AND STANDARD DEVIATION OF TIME SPENT IN EACH PLAY
CATEGORY FOR TOTAL GROUP

Category*	Range(%)	Mean(%)	S.D.(%)
U	0-14.5	5.5	± 3.9
O	0-30.4	6.3	6.0
S	2.0-37.8	17.7	8.8
Alone	2.0-74.0	29.5	14.3
P	14.5-46.4	32.0	8.5
A	0-40.0	14.0	12.4
Peer	14.5-80.5	46.1	15.0
Adult	11.5-40.0	24.4	8.0

* U - Unoccupied

O - Onlooker

S - Solitary play

P - Parallel play

A - Associative play

Figure 2

HISTOGRAM DEPICTING FREQUENCY DISTRIBUTION FOR PLAY PATTERNS

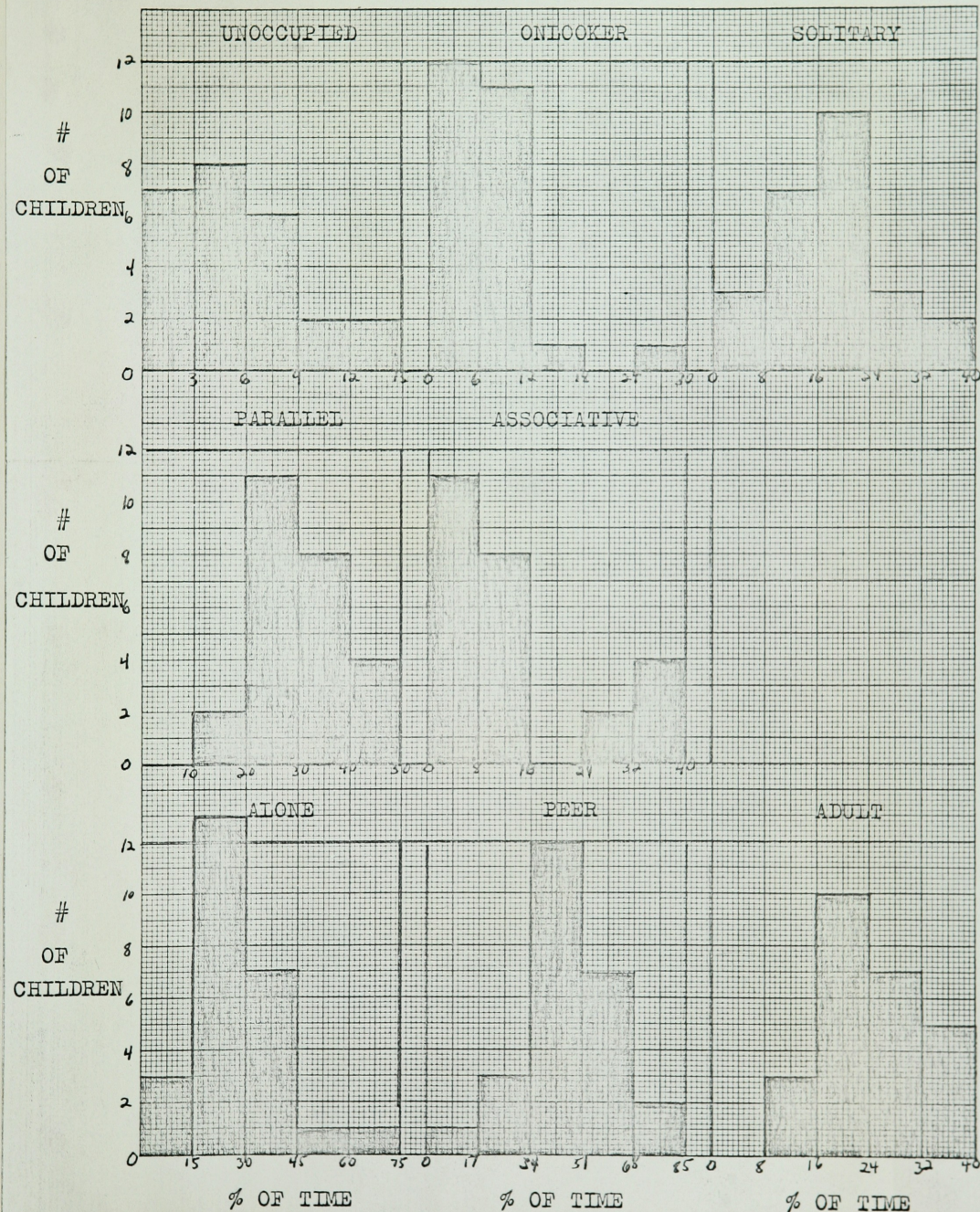


Figure 3

DOT DIAGRAM OF CORRELATION OF ALONE AND PEER PLAY

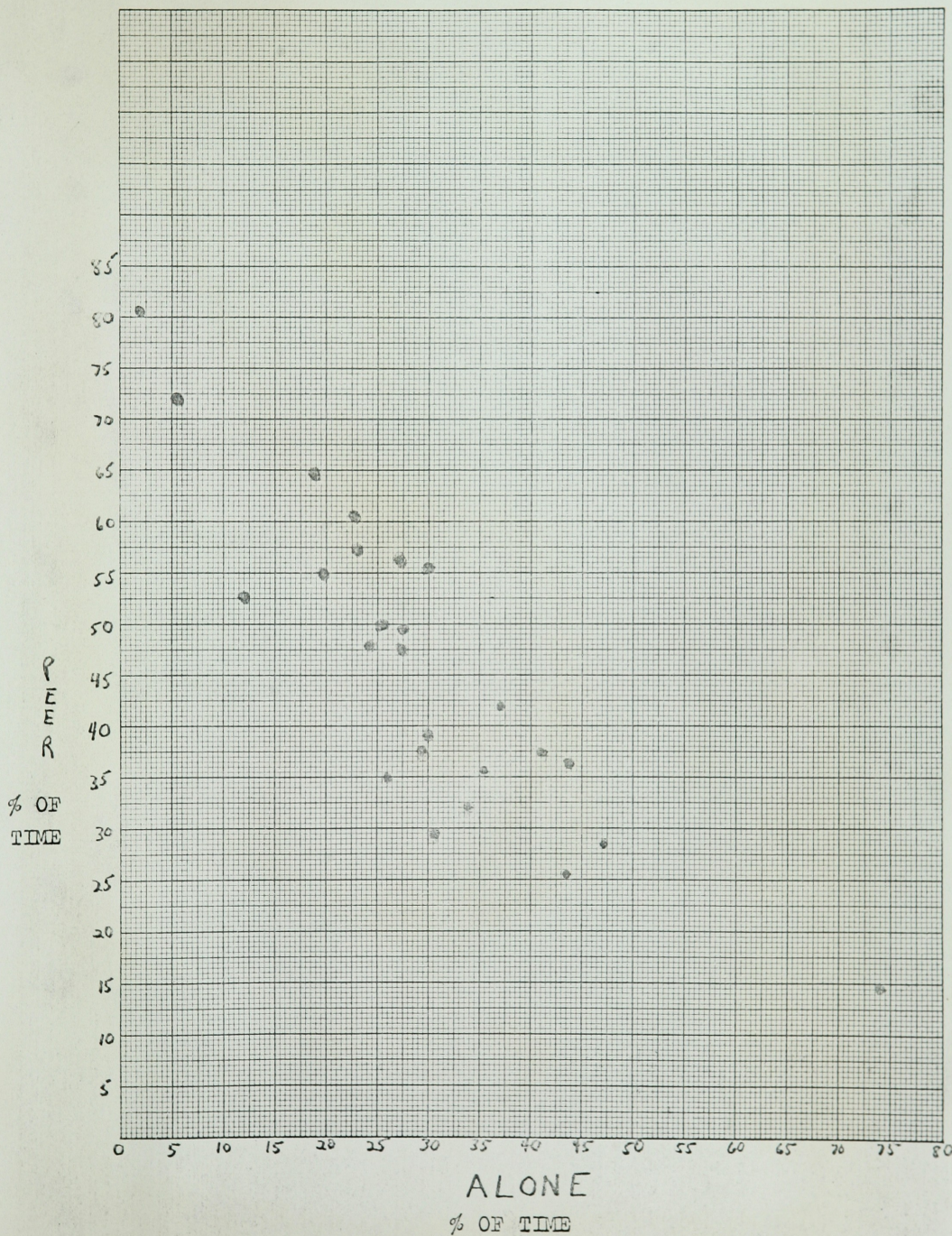


Figure 4

DOT DIAGRAM OF CORRELATION OF ALONE AND ADULT CONTACT

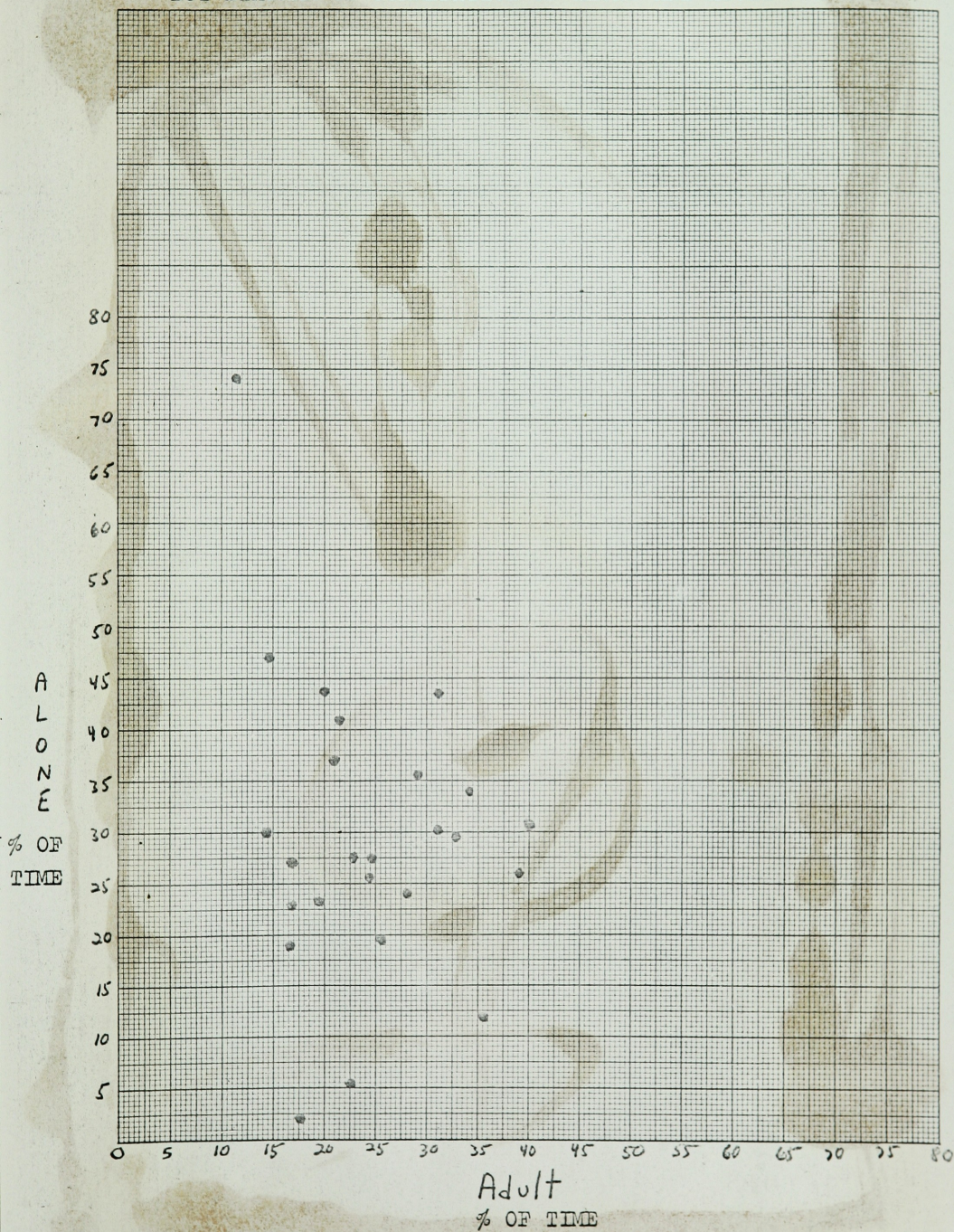


Figure 5

DOT DIAGRAM OF CORRELATION OF ADULT AND PEER PLAY

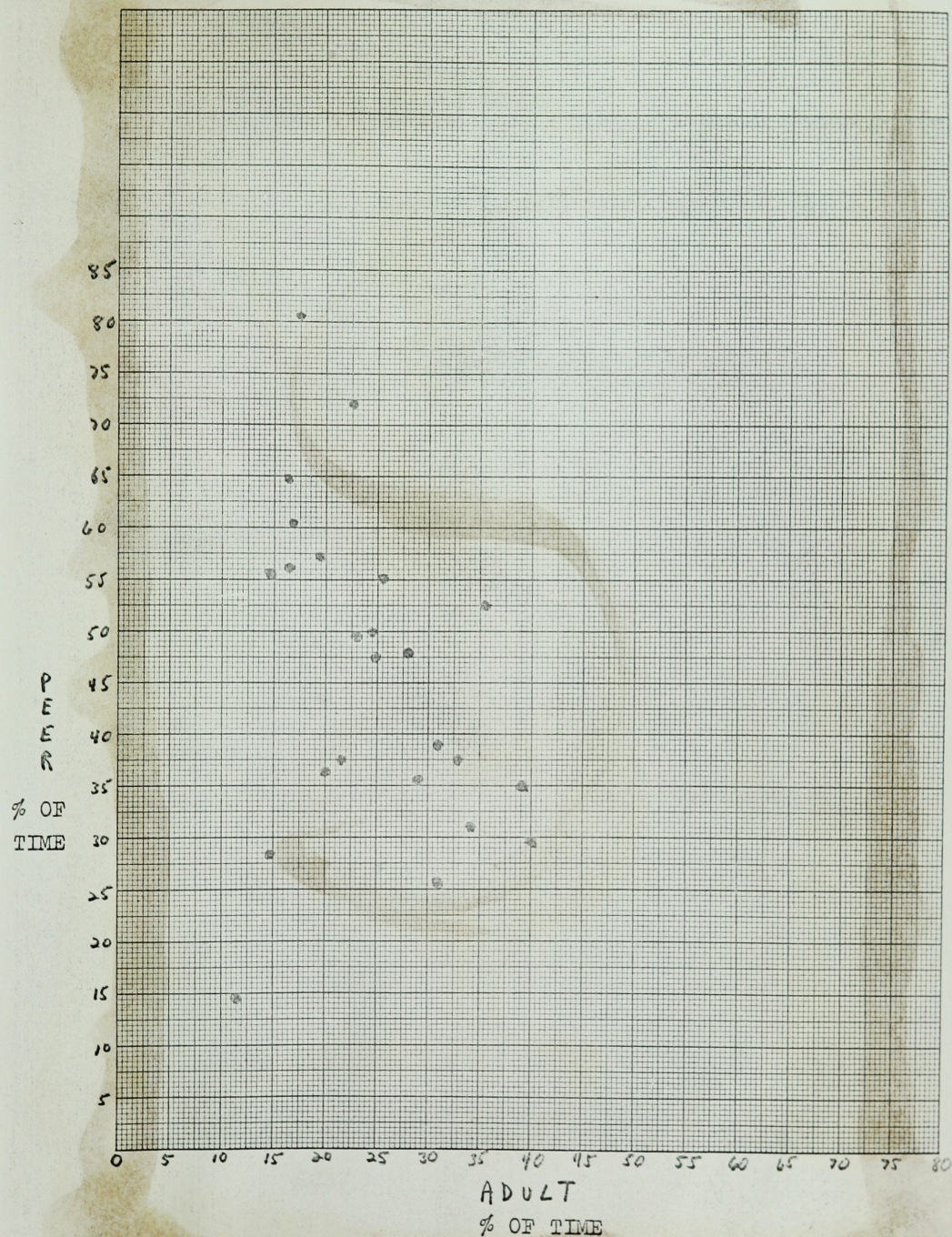


TABLE V

COEFFICIENTS OF CORRELATION AND CONFIDENCE LEVELS FOR THREE
CATEGORIES OF PLAY

Categories	Correlation Coefficient	Confidence Level
Alone and Peer	-0.85	99.9%
Alone and Adult	-0.20	Not Signif.
Peer and Adult	-0.34	90.0%

TABLE VI

MEANS, STANDARD DEVIATIONS, RESULTS OF "F" AND "t" TESTS,
AND CONFIDENCE LEVELS FOR SIGNIFICANT "t" TESTS FOR EACH
OF EIGHT VARIABLES*

1. Sex						
Play category**	Girls (13)		Boys (12)		"F"	"t"
	Mean	S.D.	Mean	S.D.		
U	6.9	± 4.0	4.0	± 3.6	N.S.	N.S.
O	8.1	7.6	4.3	2.9	Sig.	-
S	20.5	7.6	14.6	9.3	N.S.	N.S.
Alone	35.5	13.7	22.9	12.4	N.S.	Sig.
P	30.4	8.8	33.8	8.2	N.S.	N.S.
A	8.2	5.0	20.3	14.8	Sig.	-
Peer	38.7	11.8	54.2	14.2	N.S.	Sig.
Adult	25.8	8.1	22.9	7.9	N.S.	N.S.

2. Number of Days per Week						
Play category	Group II (12)		Group III (13)		"F"	"t"
	Mean	S.D.	Mean	S.D.		
U	5.9	± 4.9	5.2	± 3.2	N.S.	N.S.
O	6.9	7.9	5.7	3.2	Sig.	-
S	20.9	10.7	14.7	5.2	Sig.	-
Alone	33.8	18.1	25.5	8.8	Sig.	-
P	28.3	7.0	35.5	7.7	N.S.	Sig.
A	16.4	14.5	11.8	7.1	Sig.	-
Peer	44.7	18.5	47.4	11.5	N.S.	N.S.
Adult	21.5	7.2	27.1	8.0	N.S.	Sig.

* Means and Stand Deviations are expressed as percentages of time.

**U - Unoccupied
O - Onlooker
S - Solitary

P - Parallel play
A - Associative play

TABLE VI

3. Ordinal Position							
Play category	Youngest(9)		Oldest(10)		"F"	"t"	C.L.
	Mean	S.D.	Mean	S.D.			
U	5.4	12.9	5.1	14.9	N.S.	N.S.	-
O	5.4	3.0	7.9	8.9	Sig.	-	-
S	15.9	6.3	15.0	10.9	N.S.	N.S.	-
Alone	26.8	5.4	33.8	17.0	Sig.	-	-
P	36.3	6.0	30.1	10.9	N.S.	N.S.	-
A	10.1	10.1	19.1	14.6	N.S.	N.S.	-
Peer	46.4	10.5	48.1	25.1	Sig.	-	-
Adult	26.8	7.6	22.7	9.0	N.S.	N.S.	-

Play category	Oldest(10)		Middle(5)		"F"	"t"	C.L.
	Mean	S.D.	Mean	S.D.			
U	5.1	14.9	6.2	14.9	N.S.	N.S.	-
O	7.9	8.9	4.0	2.5	Sig.	-	-
S	15.8	10.9	24.0	6.8	N.S.	N.S.	-
Alone	33.8	17.0	34.2	8.0	N.S.	N.S.	-
P	30.1	10.9	29.6	5.0	N.S.	N.S.	-
A	19.1	14.6	10.6	10.4	N.S.	N.S.	-
Peer	48.1	25.1	40.3	12.7	N.S.	N.S.	-
Adult	22.7	9.0	25.5	7.1	N.S.	N.S.	-

Play category	Youngest(9)		Middle(5)		"F"	"t"	C.L.
	Mean	S.D.	Mean	S.D.			
U	5.4	12.9	6.2	14.9	N.S.	N.S.	-
O	5.4	3.0	4.0	2.5	N.S.	N.S.	-
S	15.9	6.3	24.0	6.8	N.S.	Sig.	95%
Alone	26.8	5.4	34.2	8.0	N.S.	Sig.	90%
P	36.3	6.0	29.6	5.0	N.S.	Sig.	90%
A	10.1	10.1	10.6	10.4	N.S.	N.S.	-
Peer	46.4	10.5	40.3	12.7	N.S.	N.S.	-
Adult	26.8	7.6	25.5	7.1	N.S.	N.S.	-

TABLE VI

4. Sex of Siblings						
Play category	Same(5)		Opposite(11)		"F" "t"	C.L.
	Mean	S.D.	Mean	S.D.		
U	2.1	± 1.3	7.0	± 4.8	Sig.	-
O	5.0	3.3	7.9	8.3	N.S.	N.S.
S	18.3	13.0	16.3	8.5	N.S.	N.S.
Alone	25.4	13.7	30.8	19.2	N.S.	N.S.
P	36.6	9.4	30.9	9.3	N.S.	N.S.
A	13.4	12.2	13.8	12.6	N.S.	N.S.
Peer	48.0	14.2	44.7	19.1	N.S.	N.S.
Adult	24.6	9.1	24.5	8.5	N.S.	N.S.

Play category	Same(5)		Both(8)		"F" "t"	C.L.
	Mean	S.D.	Mean	S.D.		
U	2.1	± 1.3	6.0	± 2.5	N.S.	Sig. 99%
O	5.0	3.3	4.4	2.5	N.S.	N.S.
S	18.3	13.0	18.9	8.0	N.S.	N.S.
Alone	25.4	13.7	29.3	7.1	N.S.	N.S.
P	36.6	9.4	31.5	7.2	N.S.	N.S.
A	13.4	12.2	14.4	14.1	N.S.	N.S.
Peer	48.0	14.2	46.1	12.3	N.S.	N.S.
Adult	24.6	9.1	24.7	8.1	N.S.	N.S.

Play category	Opposite(11)		Both(8)		"F" "t"	C.L.
	Mean	S.D.	Mean	S.D.		
U	7.0	± 4.8	6.0	± 2.5	N.S.	N.S.
O	7.9	8.3	4.4	2.5	Sig.	-
S	16.3	8.5	18.9	8.0	N.S.	N.S.
Alone	30.8	19.2	29.3	7.1	Sig.	-
P	30.9	9.3	31.5	7.2	N.S.	N.S.
A	13.8	12.6	14.4	14.1	N.S.	N.S.
Peer	44.7	19.1	46.1	12.3	N.S.	N.S.
Adult	24.5	8.5	24.7	8.1	N.S.	N.S.

TABLE VI

Play category	Worked(9)		5. Working Status of Mother Not Worked(16)				C.L.
	Mean	S.D.	Mean	S.D.	"F"	"t"	
U	5.7	± 4.5	5.4	± 3.9	N.S.	N.S.	-
O	8.1	9.2	5.3	3.1	Sig.	-	-
S	19.7	10.1	16.6	8.1	N.S.	N.S.	-
Alone	33.5	14.8	27.2	10.6	N.S.	N.S.	-
P	32.0	7.6	32.1	8.1	N.S.	N.S.	-
A	13.0	12.0	14.6	12.8	N.S.	N.S.	-
Peer	45.0	19.2	46.1	13.4	N.S.	N.S.	-
Adult	18.4	8.5	26.1	8.1	N.S.	Sig.	95%

Play category	Observed(20)		6. Autoerotic Behavior Not Observed(5)				C.L.
	Mean	S.D.	Mean	S.D.	"F"	"t"	
U	5.8	± 4.3	3.2	± 3.2	N.S.	N.S.	-
O	7.1	6.4	2.9	3.1	N.S.	N.S.	-
S	17.4	8.1	18.7	12.4	N.S.	N.S.	-
Alone	30.3	12.8	26.1	13.7	N.S.	N.S.	-
P	31.1	8.8	35.7	6.9	N.S.	N.S.	-
A	14.8	12.2	10.7	13.6	N.S.	N.S.	-
Peer	45.5	15.3	46.4	17.0	N.S.	N.S.	-
Adult	23.7	8.6	27.5	11.7	N.S.	N.S.	-

Play category	Lapses(11)		7. Toilet Training Done(14)				C.L.
	Mean	S.D.	Mean	S.D.	"F"	"t"	
U	6.1	± 4.2	5.0	± 3.9	N.S.	N.S.	-
O	7.7	8.0	5.1	3.9	Sig.	-	-
S	18.8	9.8	18.0	6.7	N.S.	N.S.	-
Alone	32.6	17.7	27.0	11.1	N.S.	N.S.	-
P	27.3	8.4	35.8	7.3	N.S.	Sig.	98%
A	16.4	14.6	12.1	10.3	N.S.	N.S.	-
Peer	42.9	18.8	47.9	12.2	N.S.	N.S.	-
Adult	23.6	10.3	25.1	6.1	N.S.	N.S.	-

TABLE VI

Play category	Yes(5)		No(20)		8. Worried Child		C.L.
	Mean	S.D.	Mean	S.D.	"F"	"t"	
U	5.4	± 4.3	5.5	± 4.1	N.S.	N.S.	-
O	5.1	3.5	6.6	6.6	N.S.	N.S.	-
S	14.2	5.9	18.6	9.3	N.S.	N.S.	-
Alone	24.8	12.9	31.0	14.6	N.S.	N.S.	-
P	28.3	7.3	33.0	8.6	N.S.	N.S.	-
A	18.6	17.2	12.9	11.0	N.S.	N.S.	-
Peer	47.0	18.3	45.4	15.0	N.S.	N.S.	-
Adult	28.2	9.0	23.5	7.7	N.S.	N.S.	-

-50-
Figure 6

MEANS OF PLAY PATTERNS FOR EACH OF EIGHT VARIABLES AND TOTAL GROUP

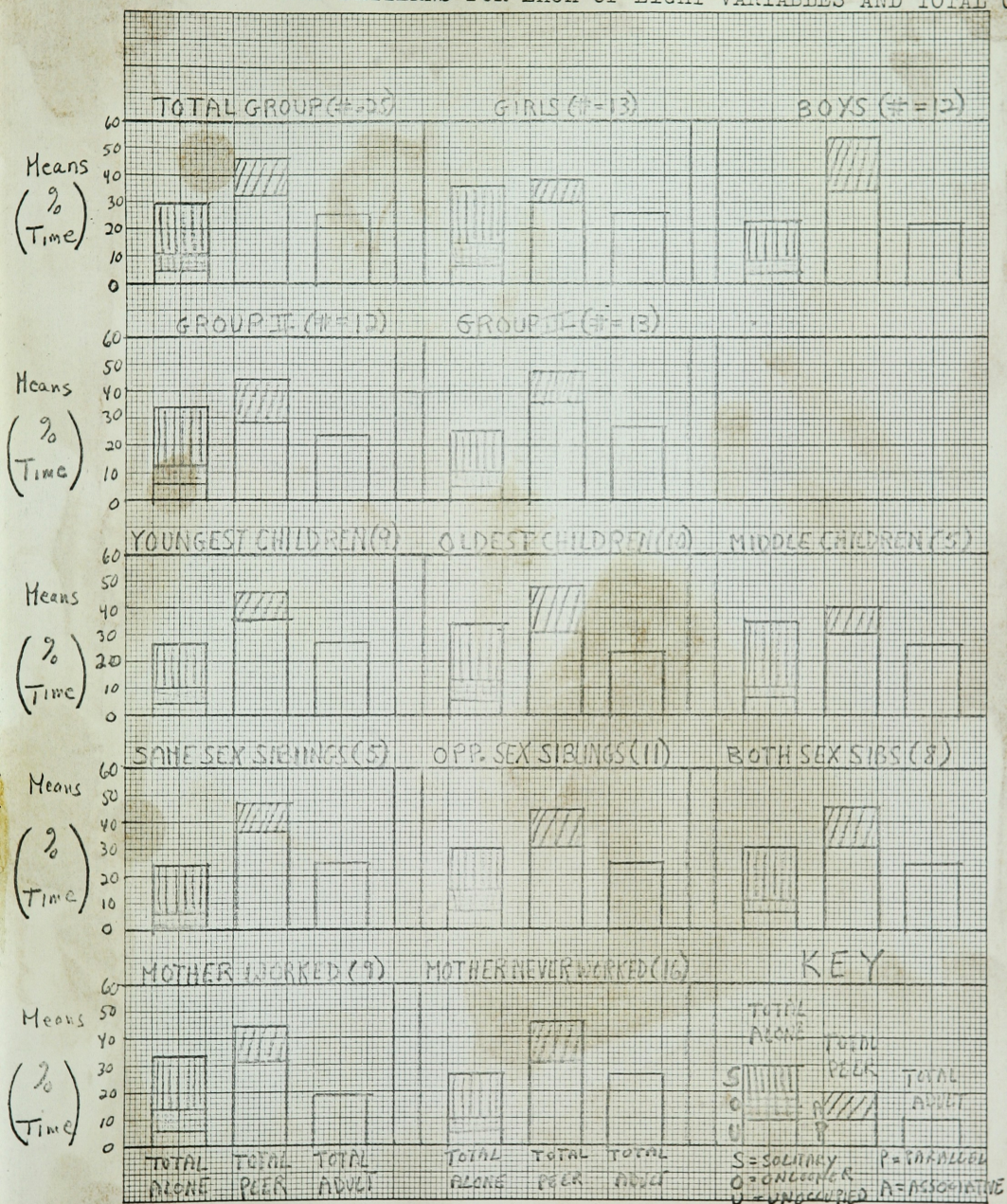
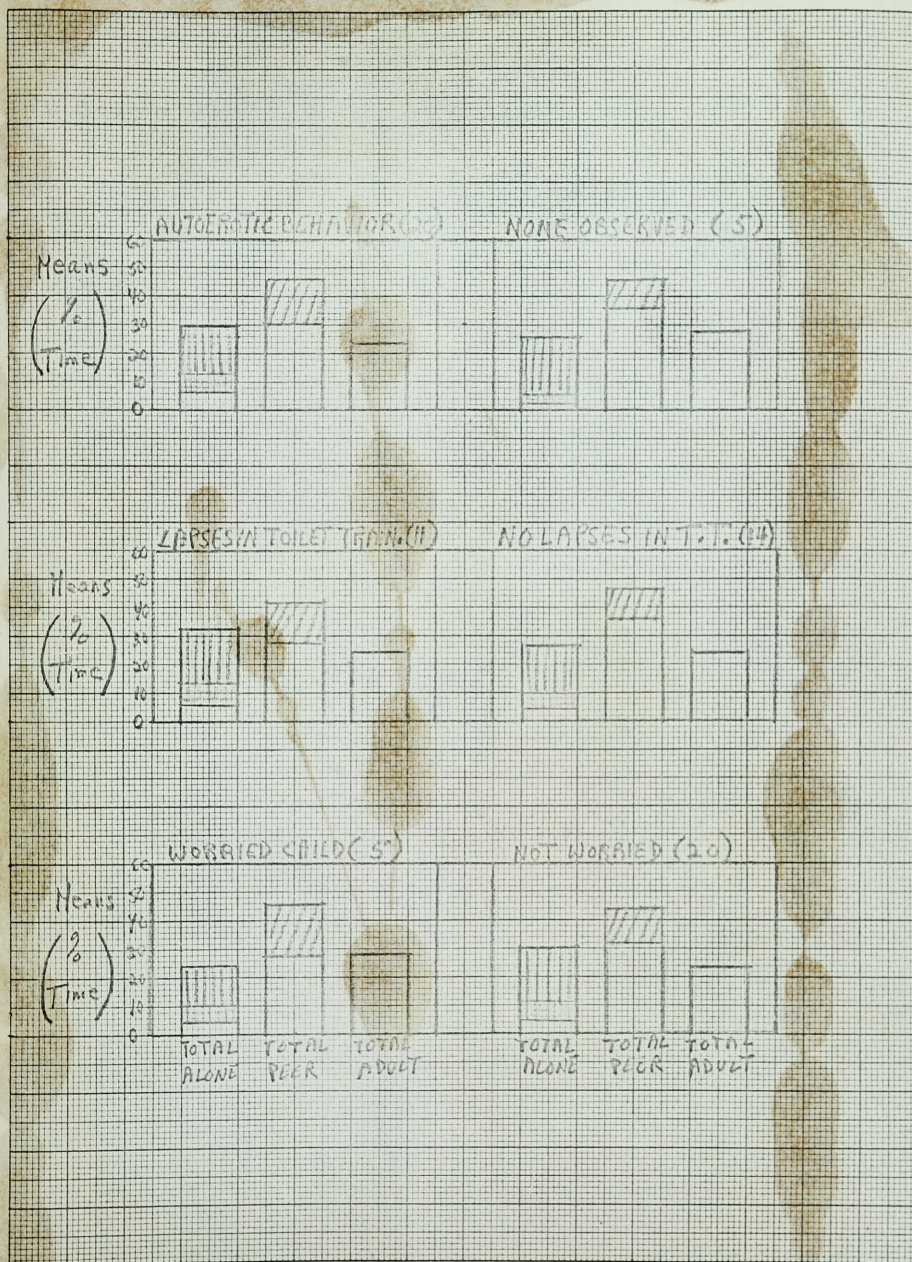


Figure 6 (continued)



1. Becker, W.C., Peterson, D.R., Luna, Z., Shoemaker, D.J., & Hellmer, L.A. "Relations of factors derived from parent interview ratings to behavior problems of five-year-olds." *Child Develop.*, 1962, 33, 509-536.
2. Bell, R.Q. "Retrospective attitude studies of parent-child relations." *Child Develop.*, 1958, 29, 323-338.
3. Bonney, M.E. "A study of the relationship of intelligence, family size, and sex differences with mutual friendships in the primary grades." *Child Develop.*, 1942, 13, 79-100.
4. Buhler, C. From Birth to Maturity. London. Paul, Trench, Trubner & co., Ltd., 1935.
5. Buhler, K. The Mental Development of the Child. London. Routledge & Kegan Paul Ltd., 1949.
6. Carmichael, L., editor. Manual of Child Psychology. Second edition. New York. John Wiley & sons, inc., 1960.
7. Chess, S. "The dynamic interplay between child and environment." *J. of Child Psychiatry*, 1947-48, 1, 371-377.
8. Chevalena-Janovskaja, E. "Les groupements spontanés d'enfants à l'âge préscolaire." *Archives de Psychologie*, 1927, 20, 219-233.
9. Davidson, K.S., Sarson, S.B., Lighthall, F.F., Waite, R.R., & Sarnoff, I. "Differences between mothers' and fathers' ratings of low anxious and high anxious children." *Child Develop.*, 1958, 29, 155-160.
10. English, O.S. and Finch, S.M. Introduction to Psychiatry. Second edition. New York. W.W. Norton & Co., Inc., 1957.
11. Gesell, A., Halverson, H.M., Thompson, H., Ilg, F.L., Castner, B.M., Ames, L.B., & Amatruda, C.S. The First Five Years of Life. New York, London. Harper & Bros., 1940.

12. Green, E.H. "Friendships and quarrels among preschool children." *Child Develop.*, 1933, 4, 237-253.
13. Green, E.H. "Group play and quarreling among preschool children." *Child Develop.*, 1933, 4, 302-307.
14. Heathers, G. "Emotional dependence and independence in nursery school play." *J. of Genetic Psychology*, 1955, 87, 37-57.
15. Ilg, F., Leorned, J., Lockwood, A., & Ames, L.B. "The three-and-a-half-year old." *The J. of Genetic Psychology*, 1949, 75, 21-31.
16. Jersild, A.T., *Child Psychology*. Fourth edition. New York. Prentice-Hall, 1954.
17. Josselyn, I.M. *Psychosocial Development of Children*. (Pamphlet). Family Service Assoc. of America, 1953.
18. Kanner, L. *Child Psychiatry*. Third edition. Springfield, Illinois. Charles C. Thomas, Publisher, 1960.
19. Koch, H.L. "Children's work attitudes and sibling characteristics." *Child Develop.*, 1956, 27, 287-310.
20. Koch, H.L. "Some emotional attitudes of the young child in relation to characteristics of his sibling." *Child Develop.*, 1956, 27, 393-426.
21. Lasko, J.K. "Parent behavior toward first and second children." *Genetic Psychology Monographs*, 1954, 49, 97-137.
22. Marshall, H.R. "An evaluation of sociometric-social behavior research with preschool children." *Child Develop.*, 1957, 28, 128-137.
23. Marshall, H.R. and McCandless, B.R. "Relationships between dependence on adults and social acceptance by peers." *Child Develop.*, 1957, 28, 413-419.

24. McCandless, B.R., Bilons, C.B., & Bennet, H.L. "Peer popularity and dependence on adults in preschool age socialization." *Child Develop.*, 1961, 32, 511-518.
25. McCandless, B.R. and Marshall, H.R. "Sex differences in social acceptance and participation of preschool children." *Child Develop.*, 1957, 28, 421-425.
26. Mummery, D.V. "Family backgrounds of assertive and non-assertive children." *Child Develop.*, 1954, 25, 63-80.
27. Mussen, P.H., Cougar, J.J., & Kagan, J. Child Development and Personality. Second edition. New York. Harper & Row, Publishers, 1963.
28. Mussen, P.H., editor. Handbook of Research Methods in Child Development. New York. John Wiley & Sons, Inc., 1960.
29. Parten, M.B. "Social participation among preschool children." *J. Abn. and Soc. Psychol.*, 1932, 27, 243-267.
30. Peterson, D.R., Becker, W.C., & Shoemaker, D.J. "Child behavior problems and parental attitudes." *Child Develop.*, 1961, 32, 151-162.
31. Piaget, J. The Language and Thought of the Child. New York. Meridian Books, Inc., 1960.
32. Schaefer, E.S., and Bell, R.Q. "Development of a parental attitude research instrument." *Child Develop.*, 1958, 29, 339-361.
33. Sears, R.R., Maccoby, E.E., & Levin, H. Patterns of Child Rearing. New York. Row, Peterson & Co., 1957.
34. Stuart, H.C. and Prugh, D.G., editors, The Healthy Child. Cambridge, Mass. Harvard Univ. Press, 1960.
35. Warner, W.L. Social Class in America. New York. Harper & Bros., Publishers, 1960.
36. Wenar, C. "The reliability of mothers' histories." *Child Develop.*, 1961, 32, 491-500.
37. Wert, J.B., Neidt, C.O., & Ahmann, J.S. Statistical Methods in Educational and Psychological Research. New York. Appleton-Century-Crofts, Inc., 1954.

YALE MEDICAL LIBRARY

Manuscript Theses

Unpublished theses submitted for the Master's and Doctor's degrees and deposited in the Yale Medical Library are to be used only with due regard to the rights of the authors. Bibliographical references may be noted, but passages must not be copied without permission of the authors, and without proper credit being given in subsequent written or published work.

This thesis by _____ has been
used by the following persons, whose signatures attest their acceptance of the
above restrictions.

NAME AND ADDRESS

DATE

